

In the United States Patent and Trademark Office

Serial No. _____

Appn. Filed : _____

Inventors: Igor Gurevich, Viktor Faibishenko, Nikolai Fedyaikin, Shinkyō Kaku, Leonid Velikov

Applicant:

Appn. Title: BIDIRECTIONAL OPTICAL SIGNAL

MULTIPLEXER/DEMULTIPLEXER

Examiner/GAU: _____

Mailed: 07.24.03
At: San Carlos CA 94070

Information Disclosure Statement

Assistant Commissioner for Patents

P.O.Box 1450, Alexandria, VA 22313-1450

Sir:

Attached is a completed Form PTO-1449 and copies of the pertinent parts of the references cited thereon. Following are comments on references pursuant to Rule 98:

US Patent No. 6,252,719 issued on January 26, 2001 to B. R. Eichenbaum describes a multiplexing/demultiplexing module. 1 in the form of a beam splitter/combiner unit with mirrors and coatings. In addition to a complexity of the construction and difficulties in alignment, this is unsuitable for transmitting/receiving different optical signals through the same channels in mutually opposite directions. In other words, the aforementioned units cannot be used in conjunction with bidirectional optical signal transceivers of the types disclosed in U.S. Patent No. 6,075, 635 issued on June 13, 2000 to T. Butrie, et al., U.S. Patent No. 5,485,538 issued on January 16, 1996 to T. Bowen, et. al, and in U.S. Patent Application No. 10/1074346 filed on 02/12/02 by Igor Gurevich, et al.

U.S. Patent No. 5,005,935 issued on April 9, 1991 to T. Kunikane, et al. discloses a wavelength-division multiplexing optical transmission system, which transmits light of wavelengths λ_1 , λ_2 , λ_3 ($\lambda_1 < \lambda_2 < \lambda_3$) by way of a single optical fiber. An optical multiplexer/demultiplexer of the filter type is used which includes a parallelogram prism, a first filter formed on a side face of the parallelogram prism, and second and third filters formed on the opposite side face of the parallelogram. Bidirectional optical fiber communications between the central telephone exchange side and a subscriber side can be achieved using such optical multiplexer/demultiplexer of the filter type. However, similar to the previously criticized module, the parallelogram prism module of U.S. Patent No. 5,005,935 also cannot be used in optical fiber communications systems, which utilize bidirectional transceivers having individual channels working in a transceiving and receiving modes simultaneously.

U.S. Patent No. 6,167,171 issued on December 26, 2000 to M. Grasis, et al. and U.S. Patent No. 6,198,857 issued on March 6, 2000 to M. Grasis, et al. both relate to optical multiplexing devices based on the use of optical prisms with filters and mirrors formed on external surfaces of the prisms.

Thus, U.S. Patent No. 6,167,171 describes an optical multiplexing device comprising multiple wavelength division multiplexers cascaded together. In its form as described and shown in the specification of aforementioned U.S. Patent No. 6,167,171, the module disclosed in this patent cannot be used in conjunction with an optical fiber communications system that utilizes bidirectional transceivers with individual channels working in a transceiving and receiving modes simultaneously. The second patent, i.e., U.S. Patent No. 6,198,857, also relates to an optical multiplexing device for multiplexing optical signals, for example, for a fiber-optic telecommunication system employing wavelength division multiplexing. This device is an add/drop type device which has a filter assembly defining a light path, preferably a multi-bounce zigzag expanded beam light path, from a common port at least to a first channel port and then a second. The device described in this patent possesses the same disadvantages as all the previously analyzed references.

Thus, none of the references described above discloses, as Claimed in our independent Claim 1 with dependent Claims 2-13, as well as in independent Claim 14 with dependent Claims 15 through 17, an optical signal multiplexer/demultiplexer capable of multiplexing/demultiplexing optical signals of different wavelengths transmitted and received simultaneously in opposite directions through the same channels and in conjunction with the use of bidirectional optical transceivers. Furthermore, none of the references mentioned above discloses, as claimed in our independent Claim 18 with dependent Claims 19 through 21, a method of multiplexing/demultiplexing optical signals of different wavelengths transmitted and received simultaneously in opposite directions through the same channels and in conjunction with the use of bidirectional optical transceivers.

Respectfully,

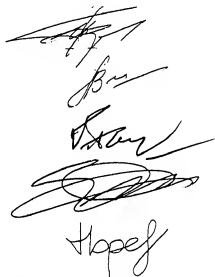
Applicants

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A series of four handwritten signatures in black ink, stacked vertically. The signatures are stylized and cursive, representing the legal names of the applicants.

March 19/2003

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known

Application Number	
Filing Date	
First Named Inventor	Igor Gurevich
Art Unit	
Examiner Name	
Attorney Docket Number	

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
DIT		US- 6252719	2001	R. Eichenbaum	
		US-			
		US- 6075635	2000	T. Butrie et al.	
		US-			
		US- 5485538	1996	T. Bowen et al.	
		US-			
		US- 5005935	1991	T. Kurikane et al.	
		US-			
		US- 6167171	2000	M. Grasis et al.	
		US- 6,198,857	2000	M. Grasis et al.	
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ²
		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				

Examiner Signature	/Dzung Tran/	Date Considered	04/10/2008
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST 3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST 16 if possible. ⁶ Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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